

A

REPORT

ON THE



HYGIENIC CONDITION OF THE MERCANTILE MARINE,

AND ON THE

PREVENTABLE DISEASES

OF

MERCHANT SEAMEN.

BY

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P R E F A C E :

THE favourable notice taken of these Reports as they have lately appeared in the pages of *The British Medical Journal* induces me to believe that the information contained therein may be useful and interesting to the general reader. The financial interests of owner and master so very materially depend on the sanitary condition of the sailor, that no apology is needed in publishing a detail of defects and a suggestion of remedies, practically tending to the advantage of all engaged in the vast commercial transactions accomplished by the aid of our Mercantile Marine.

Hospital Ship *Dreadnought*, S.E.

H. L.

Feb, 1867.

REPORT.

I.—GENERAL REMARKS.

THE unsatisfactory condition of that very important section of our community who man the merchant fleets of Great Britain, has now for some months occupied general as well as special attention, and has formed the subject of many leading articles in the principal daily journals. The scarcity of competent sailors, and the consequent rise in wages, threaten to injure seriously the vast commercial interests of this country ; and the subject has lately roused to speaking action those who are financially interested in this question.

The merchants of Liverpool appear to have been in the van of inquiry for the application of proper remedial agents ; and the visit of Sir Stafford Northcote to that town on October 2nd in last year, gave occasion for a preliminary ventilation of the subject. Like all extra-Parliamentary utterances, the views of the President of the Board of Trade were indefinitely given ; but a cry for more training ships was led by Mr. Graves, one of the members for Liverpool, and strongly recommended by him as an antidote for many of the ills under which the merchant service is at present suffering. The general public have little or no opportunity of knowing any precise particulars as to the true conditions under which the merchant navy of the most powerful maritime kingdom in the world is conducted ; though the great success which attended a ship-to-ship visitation of the Thames, instituted by the *Dreadnought* authorities, during the recent epidemic of cholera, has stimulated curiosity on this head. But, to the genuine landsman, the oft-quoted Merchant Shipping Act of 1854 is a maze of clauses and amendments, abused alike by shipowner, master, mate, and seamen, as absurd, useless, and obstructive. There is no doubt that many of its sections are inoperative ; and, as we shall presently show, those relating to the provisions, health, and accommodation of seamen, fail markedly in accomplishing their ostensible uses. Fever exists to a great extent in our coasting, scurvy in our ocean-going ships, and venereal diseases in both.

A memorial from a hundred and seventy seamen of the north-eastern ports has recently been enclosed to the Registrar-General of

Shipping, for transmission to the Board of Trade, which sets forth in sadly decisive sentences the evils appertaining to the coasting trade in the present day. During the past two years, more than two hundred cases of scurvy have entered hospitals in this port alone, and many more are known to have been treated in the Sailors' Homes, or at their own lodgings.

So unpopular is the sea as a service, that the proportion of sailors to the whole population of Great Britain is little over one per cent., though the ships of the British Empire required, in the year 1865, upwards of 346,000 hands to man them, and, at the present rate of increase in the number of these ships, 8000 additional seamen are wanted every year. Three chief unhealthy results now obtain: 1, the necessary employment of inferior and very incompetent men; 2, the manning of vessels by a large proportion of foreigners; and 3, an increase in rate of wages. But, as inefficient workmen endanger the safety of ships, their cargoes, and themselves; as the presence of a large proportion of foreigners might, for political reasons, be dangerous to the state; and as an increase of wage to the seamen often indicates a decrease of profit to the shipowner,—the latter are not unnaturally anxious to inaugurate, by legislative or other effectual means, a new and happier state of things.

It is not our province at present to speak of official exertions and inquiries with reference to this subject; but, during the past twelve months, sections of this question have been discussed, not only, as we remarked above, in the daily journals, but at various meetings at the United Service Institution and elsewhere, and in a lecture delivered by Captain Toynbee, whose experience is well known, and who has lately published a pamphlet setting forth the grievances of the sailor, and giving many useful hints as to the amelioration of his condition. The subject of scurvy has been fully and ably treated by Dr. Dickson, R.N., Medical Officer to Her Majesty's Customs, in addressess delivered in June and November of last year at the Epidemiological and Hunterian Societies. But all these unofficial discussions have been more or less of a piecemeal nature, the religious, medical, or commercial aspect of the question, being severally and singularly discussed to the comparative exclusion of the rest. It has, therefore, occurred to us to inquire into the entirety of causes that has led to the results described above, and, in so doing, to point out defects and evils in an impartial spirit. For it cannot be denied that, as a matter of commercial economy, it is greatly to the advan-

tage of the shipowner that his vessels should be manned by sound and healthy crews ; and that, by looking after the vital material employed, as well and as closely as the spars, ropes, and other gear, he will materially aid the speed of the ship and the safety of her freight. So that, in describing the evils of the present system, it will be our endeavour to show that remedies other than the employment of training-ships and the "coddling" of sailors are needed, remedies far less costly and by no means experimental.

The merchant navy of Great Britain may be most conveniently divided into three chief classes : 1, ocean-going ships ; 2, coasters ; 3, barges and river-craft. In the first class are comprised all British-owned vessels employed in trade to foreign countries. Of these, about 27,000 are entered in, and 29,000 cleared from, the ports of the United Kingdom every year. The second class includes colliers, fishing-smacks, and all other vessels employed in the coasting trade, 147,000 of which are entered and 151,000 cleared annually. The last class above named includes a vast number of small vessels, such as sailing-barges, oyster-boats, eel-boats, and all other craft that can boast of a deck. This last division is mainly confined to vessels belonging to the port of London ; and our subsequent remarks will be chiefly grounded upon particulars obtained at this, the richest of our commercial cities.

Nearly 12,000 ocean-going vessels enter the Thames year by year, and the numbers increase at the rate of about 500 annually. The gross annual amount of Customs duties collected in the port of London is about eleven millions sterling, which fact (as well as those indicated by the above figures) suffices to show the importance of removing any evils that may exist in the working and maintenance of our ships and of the crews that man them. Our remarks on each of the above classes will relate to existing arrangements for the provisioning, health, and accommodation of sailors ; the number of hands employed in proportion to the tonnage ; the normal state of "Jack" when ashore, and the extent of home and hospital resources provided for him at home and abroad ; with, if possible, a sketch of the number, resources, and results of the training-ships at present employed in the various ports of the United Kingdom in connexion with the mercantile marine. The preventable diseases will be also specially discussed ; and it will be our care and concern to suggest such hygienic remedies as shall render the calling of a sailor more popular, and so to attract into its ranks an able and efficient body of men.

Any changes that lead to such a result must eventually work out a commercial success, to the sanitary benefit of the employed, and to the financial benefit of the employers.

II.—OCEAN-GOING SHIPS.

IN proposing to give particulars as to the working inhabitants of this class of ships, we take leave again to remind the reader that no less than 27,000 of these vessels depart from the ports of the United Kingdom every year, and that they represent an annual export trade of little under £200,000,000 sterling. These vessels vary in size from about 250 to 2,500 tons, and the number of their crews (all told) from 10 to 60 men. No definite law at present exists as to the relative proportion of men to the size of the ship; so that the number of hands employed is, practically speaking, at the discretion of the owner or his agent. By the rules of the Government Emigration Service, however, 4 men are required to every 100 tons up to 500, 3 men to every additional 100 tons up to 1000, and 2 men for every 100 tons above this amount; so that, for example, a vessel of 1,500 should carry 45 hands, all told. Some few owners adopt this scale in tolerable entirety; but our readers will see, from the following tabulated statement of vessels that have arrived in the Thames during 1865 and 1866, to what extent this arrangement is carried out.

Name of Ship.	Regis- tered Tonnage.	No. of Hands Home (all told).
Galloway	1329	29
French Empire	1324	27
Eaglet	392	14
Thorndean	1207	35
Royal Alice	1244	32
Geelong	456	14
Prince Oscar... ..	1292	32
Tamerlane	764	21
Marlborough	899	23
Saint Andrew's Castle	639	19
Hoang-Ilo	566	21
Stirling Castle	1165	32
Blanche Moore	1838	35
Merrie England	1045	29
Hermine	538	17

When, too, we know that, thirty years ago, the regular complement for every 100 tons was 5 men and 1 apprentice, it is evident that, on this head, a decadence has taken place, though some allowance must be made on account of recent improvements (such as patent reefing topsails), which naturally and reasonably tend to curtail the number of hands required. The able and ordinary seamen are berthed in a

deck-house built between the fore and main-masts, or, more usually, in what is technically called a top-gallant forecastle, and in some cases in a lower forecastle. The first plan is, however, gaining ground as to large ocean-going ships; and Mr. Green's *Highflyer* is a good example of many new vessels built on the deck-house principle. It is ordered by the Merchant Shipping Act, that nine superficial feet shall be allotted to every one of the crew, if sleeping in hammocks; or twelve superficial feet under any other arrangement; that every such place shall be free from stores or goods, and shall be properly caulked and ventilated—a failure as to the rule to result in a penalty. These regulations are, however, practically a dead letter; for, as no inspection of seamen's quarters takes place previous to sailing, as no law exists as to the number of seamen carried, and as, moreover, all space allotted to the crew is deducted from the tonnage of the ship when registered, the terms of the Act are frequently evaded in a very great degree. We may fairly, too, take exception to the terms of an Act, which indicates nine superficial feet as sufficient for the healthy lodgment of a sailor.

The following list, however, contains the measurement of seamen's quarters in several of the finest vessels now in the East India Docks.

Registr. Tonnage.	Name of Ship.	No. of Bunks.	Dimensions of Upper or Top-gallant Forecastle.			
			Length. Feet.	Breadth. Feet.	Height. Feet.	
833 ...	Hindustan	... 14	... 22	... 24	... 7	
963 ...	Duke of Athole	... 22	... 30	... 24	... 7	
793 ...	Blackwall...	... —	... 32	... 27	... 6	
Dimensions of Lower Forecastle.						
816 ...	Gala	... —	... 20	... 22	... 7	
Dimensions of Deck-house.						
1012 ...	Highflyer...	... 20	... 30	... 14	... 6½	
468 ...	Anazi	... 8	... 10	... 12	... 5¾	

Examples are here given of the three different modes of housing ships' crews. No deductions are made in this table for the space occupied by chain-cable and bowsprit, and the measurements are in all cases taken at the widest parts.

In all the forecastles, where the bunks are mostly arranged round the bows of the ship, the space abaft (or the widest end) is completely open from the break of the forecastle to the deck below when in port; and at the other, or forward end, of this very airy apartment, two large hawse-holes are constantly open for the passage of the cables. These latter, of course, run completely through the quarters of the crew; and, by consequence, unless the weather be fine and the water smooth, these quarters are constantly wet. Here the men eat, drink, and sleep, in the immediate vicinity of the galley, and often in

very close proximity to any live stock that may be carried for the use of officers or passengers during the voyage. It may, therefore, without nautical knowledge, be inferred that any comparative amount of decency or cleanliness (not to speak of comfort) is utterly impossible when the cables are bent. When at sea, the hawsepipes are closed; the open space is sometimes partially, sometimes wholly, filled up, in a rough and ready style, egress and ingress being afforded to the sailors by means of a hatch opening on to the fore-castle, which, from its normal dimensions, may be called a man-hole.

Thus much for healthy accommodation and ventilation of quarters. It should be remarked that, as to iron ships, the consequences of these latter deficiencies are, in warm latitudes, necessarily much exaggerated.

We come next to rations. The scale of provisions accorded to the crews of sea-going ships is not prescribed by Act of Parliament, and so this important matter is also left entirely to the discretion of owner and captain. As facts should always precede opinions, we append in this place some scales of provisions taken from agreements of certain ships engaged in the foreign trade.

London to East Indies.

		Bread.	Beef.	Pork.	Flour.	Peas.	Tea.	Coffee.	Sugar.	Water.	Rice.
		lb.	lb.	lb.	lb.	pt.	oz.	oz.	oz.	qts.	lb.
Sunday ...	...	1	1½	—	½	—	½	½	12 weekly	3	—
Monday ..	...	1	—	1¼	—	¼	½	½		3	—
Tuesday ...	...	1	1½	—	½	—	½	½		3	—
Wednesday	...	1	—	1¼	—	¼	½	½		3	—
Thursday	...	1	1½	—	½	—	½	½		3	—
Friday ...	...	1	—	1¼	—	¼	½	½		3	—
Saturday ...	...	1	1½	—	—	—	½	½		3	½

Liverpool to East Indies.

		Bread.	Beef.	Pork.	Flour.	Peas.	Tea.	Coffee.	Sugar.	Water.
		lb.	lb.	lb.	lb.	pt.	oz.	oz.	oz.	qts.
Sunday ...	...	1	1½	—	½	—	½	½	2	3
Monday ...	...	1	—	1¼	—	½	½	½	2	3
Tuesday ...	...	1	1½	—	½	—	½	½	2	3
Wednesday	...	1	—	1¼	—	½	½	½	2	3
Thursday	...	1	1½	—	½	—	½	½	2	3
Friday ..	...	1	—	1¼	—	½	½	½	2	3
Saturday	...	1	1½	—	—	—	½	½	2	3

Sunderland to East Indies, etc.

	Bread.	Beef.	Pork.	Flour.	Peas.	Rice.	Tea.	Coffee.	Sugar.	Water.
	lb.	lb.	lb.	lb.	pt.	lb.	oz.	oz.	oz.	qts.
Sunday ...	1	1½	—	½	—	—	⅛	½	2	3
Monday ...	1	—	1¼	—	⅓	—	⅛	½	2	3
Tuesday ...	1	1½	—	½	—	—	⅛	½	2	3
Wednesday ...	1	—	1¼	—	⅓	—	⅛	½	2	3
Thursday ...	1	1½	—	½	—	—	⅛	½	2	3
Friday ...	1	—	1¼	—	⅓	—	⅛	½	2	3
Saturday ...	1	1½	—	—	—	⅓	⅛	½	2	3

These scales represent fairly enough those used by most ships of the present day ; and, notwithstanding the vast amount of improvement in variety of portable prandial material during the last twenty years, we may safely assert that, beyond the introduction once a week of a certain small amount of preserved mixture called soup and *bouilli*, no change has taken place in the mode of provisioning vessels for the last half-century. (It cannot be denied, however, that in good-class ships the *quality* of diet has greatly improved.) When a vessel is in port, the Act commands that fresh provisions of good quality shall be served out to the crew day by day ;* and there is no doubt that, on smart lines, the men, when at harbour service, fare well. But it is well known that masters of ships frequently put into St. Helena, or stand “ off and on ” while a boat goes on shore, without providing fresh rations or even fresh vegetables for their men, though water-cresses grow in profusion about the island. It is, too, within our cognisance, that vessels arriving at Gravesend from abroad, and remaining there at least twenty-four hours, have taken in no fresh provisions whatever until they have come up the river and hauled into dock, though the homeward passage may have extended over 120 days. During the ship-to-ship visitation so admirably conducted by the Seaman’s Hospital Society in the Thames last year, under the auspices of Dr. Rooke, Mr. W. Johnson Smith, chief of the visiting-staff, found the crew of a vessel (which had just arrived from the West Indies) busily engaged in cooking a mass of animal matter, which nasal demonstration quickly discovered to be in a semi-putrid state. He was told by the seamen that the master and mate had gone ashore (probably to dinner), and that this was the last remnant of

* *Vide* conclusion of Report.

their sea fare, off which, *volentes volentes*, they were then about to dine. It is not, however, to these points alone, which, it may be hoped, are somewhat exceptional, that we would draw special attention; but chiefly to the miserable want of variety in the above scales of diet, however good and however abundant such diet may be. By way of contrast, we may refer to the following scale of provisions adopted in the French mercantile marine, a perusal of which will show how very materially and usefully it differs from those above quoted.

Synopsis of Diet Scale adopted in the French Mercantile Marine.

Breakfast.—Coffee, bread or biscuit, brandy or rum.

Dinner.—Preserved beef or salt pork, vegetables or desiccated vegetable mixture, and wine.

Supper.—Haricot beans dressed in two ways, potatoes baked in the cinders, and wine.

Seasonings, etc.—Sour crout or pickles, preserved sorrel, olive oil, mustard, vinegar, and lemon-juice, at the rate of *one ounce* per man daily, with one ounce of sugar, and one pint and three-quarters of water.

The most noticeable articles in this scale of diet are, the variety of vegetables given, and the ration of wine or brandy. Very few sailors are now supplied with any grog at all at sea; but to this, among other additions and changes, we shall presently refer. Arrangements for the supply of good water are lamentably neglected, in spite of the simplicity of a distilling apparatus, and the patent fact that the river-water at Calcutta and some other ports is notoriously provocative of dysentery and maladies akin thereto.

With the view of protecting the seamen in the matter of provisions, it is ordered by the Merchant Shipping Act that, upon a complaint made by three or more of the crew of any ship to a naval, consular, or customs officer, or shipping master, in any port, as to quality of water or provisions, an examination may be made, and a penalty exacted; that the seamen shall receive, by way of compensation for any reduction or bad quality of provisions, at a certain rate per day. It is also enacted that proper weights and measures shall be carried, for the correct weighing out of the rations. It is scarcely necessary to point out the extreme difficulty to sailors of taking action under the first section of the Act above mentioned, or of the inutility of so doing when they return home, unless, indeed, money be to them of more value than health; and, as no control of weights and measures exists before or during the voyage, this latter section can be of no practical benefit whatever to the persons meant to be protected by it.

Thus much as to provisions. It is, in the next place, our province to mention the existing prophylactic measures that are by British law employed for the preservation of health to seamen afloat. The following measures refer particularly to diseases, and specially to that least excusable, because preventable malady, called scurvy. By the terms of the Act, it is enjoined that every foreign-going ship (except those bound to ports in Europe or the coasts of the Mediterranean, or those north of the 35th degree of north latitude) shall be provided with a sufficient quantity of lime, or lemon-juice, which shall be served out with a stated proportion of sugar (to the crew) *daily*, at the rate of half an ounce per man. A penalty is enjoined on this head for bad quality or a deficient quantity of this article; and the same penalty applies also, under the same conditions, with respect to all drugs and medical stores, a list of which is issued by the Board of Trade. As to this clause, it is to be observed that, unlike the section on provisions, no seaman can recover any compensation, how much soever his health may have suffered from a breach thereof, as all penalties under that clause go to the Crown; so that even the poor satisfaction of a financial *quid pro quo* is here denied him.* It is ordered, indeed, that any Local Marine Board *may*, on being required by the Board of Trade to do so, appoint an inspector to examine limejuice and medical stores. But the insertion of the above italicised word makes the clause practically useless; and so neither sailor nor shipowner has any guarantee as to the quality of lime-juice and drugs supplied, nor has the former any means of redress on account of deteriorated health at the end of the voyage.

We will now recapitulate as briefly as possible the progress of scurvy in our mercantile marine during the last thirteen years—*i. e.*, since the last Merchant Shipping Act became law. In so doing, it would neither be courteous nor honest if we failed to mention in this place that the revival and energetic pursuance of the question is entirely due to the exertions of the Seaman's Hospital Society, through their very able Secretary, Mr. Kemball Cook; and also to Mr. Dickson, R.N., Medical Officer of Her Majesty's Customs, and Mr. Everard H. Coleman, of the Registrar-General's Department for Seamen, who were appointed by the Board of Trade to conduct inquiries on the subject.

During the past thirteen years, it is found that 1,230 cases of scurvy

* *Vide* conclusion of Report.

are recorded in the books of the *Dreadnought* Hospital Ship. By an analysis of these figures, we find that, after a decrease in the numbers admitted in 1855, the annual total varies but little until the year 1865, when the admissions rose to 102, or 20 per cent. over most of the previous ten years. The same result obtains in the year just past, 101 having been entered. From returns of the Liverpool hospitals, gleaned 1863, we learn that 50 cases were admitted during that year ; and, by the courtesy of Mr. Reginald Harrison, we find that the numbers admitted into these institutions during last year rose to 116. By the kindness of Dr. Fowler, surgeon to the Civil Hospital in the island of St. Helena, we are informed that from 1860 to 1865, both inclusive, 178 cases of scurvy were admitted there, and that twice or thrice that number were treated as out-patients.

Here we may end, for the present, statistical facts, having omitted minor returns from other hospitals, metropolitan and provincial. But we are permitted to state, under the authority of Captain Webb, R.N., Superintendent of the Wells Street Sailors' Home, and of Mr. Burman, its visiting medical officer, that the *Dreadnought* statistics, large as they are, give no adequate idea to the public mind as to the actual number of men that enter the port of London suffering from scurvy. No statistics have as yet been kept of the cases that go to this large and very useful establishment ; but we were assured that their numbers most probably equal, and as possibly exceed, those admitted into the *Dreadnought* ; and that, as on the latter ship, a marked increase had been lately observed. Many, too, crawl or are carried to lodging-houses in the immediate neighbourhood of the docks, as can be attested by many practitioners in those districts. But the positive evidence above stated summarises a sufficient amount of facts to show that there-mittent leaders, letters, and "corners" in our daily and other journals on scurvy are by no means fanciful, exaggerated, or unnecessary.

It is particularly important that the cause of scurvy should be defined as closely as possible ; less, perhaps, for the benefit of the scientific than of the commercial community. Medical works on this subject are singularly few in quantity, and, sooth to say, in quality by no means rich. The names of Lind (who wrote in 1757), of Sir Gilbert Blane, and Dr. Budd (late physician to the *Dreadnought*), include all authors whose books can be quoted authoritatively on this question ; and there is no doubt that few writers on the scientific history of scurvy are likely to produce anything to equal in value the almost exhaustive particulars furnished to us by the last named author in the

“Library of Medicine.” It is proper, however, that we should mention the valuable contributions of Dr. Barnes (who furnished an elaborate report for the Medical Officer of the Privy Council in 1864); of Dr. Stephen Ward, physician to the *Dreadnought*, who has contributed many valuable annotations to the medical journals; and of Drs. Dickson, Buzzard, and Norman Chevers, of Calcutta.

By a perusal of Dr. Budd’s treatise, we learn “that the chief indications of scurvy are met with in the colour of the skin, the state of the gums, and in the presence of fibrinous effusions, and of ecchymoses or effusions of blood. These effusions occur most frequently in the skin, the subcutaneous cellular tissue, between the muscles of the lower extremities, and of the jaws, in the peritoneal coat, and in the muscular and mucous coats of the intestinal canal. The general paleness of the tissues shows that there is great deficiency of red particles in the blood; and the tendency to swoon, so constant in scurvy, is undoubtedly owing, in some measure, to this deficiency, though it is evident that diminished proportion of red particles, which is common to many diseases, is not the only, nor the most important change of the blood in scurvy.” In this is included all the physiology of the question as yet known; and the evidence of all the authors above quoted goes to prove that a want of vegetable diet is the chief, if not the sole, cause of scurvy.* It is, in the present state of chemical and therapeutic knowledge, impossible to say what is the precise antiscorbutic ingredient necessary for the prevention of this disease. Garrod will tell us that it is potash; and John Morgan, of Dublin, maintains with great pertinacity that phosphorus is the elementary substance required. Be this as it may, all discussions thereon are so purely theoretical, that we continue to urge the use of a vegetable material which, by its natural combinations, has always proved eminently and entirely successful. It is now more than a century since Lind established the fact that lime or lemon-juice, as a vegetable combination, could be confidently classed as, *par excellence*, the prophylactic agent for scurvy. Its use was commenced by Sir Gilbert Blane in our navy about seventy years ago, since which time the cases of scurvy treated in that service have been infinitesimally small; and it is now, with naval medical officers, practically

* We may here remark that the experience of Sir Edward Belcher (who, at the Society of Arts, on Wednesday, the 16th inst., emphatically declared wet clothes to be the sole cause of scurvy) is not in accordance with many facts enumerated by other commanders.

classed as an unknown disease. It was, therefore, wisely enacted in the Merchant Shipping Act, that lime or lemon-juice should be taken out for the crews of all ocean-going ships. No definite provisions are, however, made to ascertain the quality of this juice ; and we are prepared to maintain from the following table (and other statistics from which these have been taken), that the want of good lime or lemon-juice was distinctly the cause of scurvy in the vessels below mentioned.

Name of Ship.	No. of Hands (all told).	Cases of Scurvy.	Results of examination of Lime-juice.
Hermine ...	17	5	Sulphuric acid.
Merrie England ...	29	10	Stinking.
Stirling Castle ...	32	6	Very weak.
Hoang-Ilo ...	21	5	Acetic acid.
Blanche Moore ...	35	8	Musty and nauseous.
Saint Andrew's Castle	19	7	Citric acid.
Tamerlane ...	21	4	Nauseous.
Marlborough ...	23	8	Very weak.
Galloway ...	29	6	Short allowance.
Tamar ...	17	2	Very weak.
French Empire ...	27	7 or 8	Citric acid.
Eaglet ...	14	3	Thick and nasty.
Geelong ...	14	9	Taken irregularly.
Thorndean ...	35	2	Spoiled. (Short supply of provisions.)

Taken from ships that, with others, have arrived in the port of London during the past two years with cases of scurvy.

Of direct causes, this is undoubtedly first and foremost ; but of indirect causes we have a few words to say. Dirt, bad provisions, and any form of disease to which sailors, in common with other men, are subject, will predispose to scurvy. This cannot and should not be denied, though it affords to parsimonious captains a very large peg whereon to hang sundry invectives as to the cry lately made about the continued prevalence of this disease in the mercantile marine. Such captains, with pardonable ignorance, consider scurvy a form of venereal disease, give the wretched subject thereof mercury, and bring him into port salivated as well as scorbutic.

But, if the sailor be subject to other diseases to which all flesh is heir, it is specially necessary that he be guarded from scurvy, which, superadded to any malady, will at once strike him off the roll of the ship's effective force. With a view to the eradication of this evil, a plan, with all working details, for the inspection of lime and lemon-juice, has been submitted by the Seamen's Hospital Society to the Board of Trade, inexpensive in its working, and by no means embarrassing to the trade of our ports. Its action would be limited ;

or by the tabular statement annexed below (which has been taken from *Dreadnought* statistics), it is shown that this inspection need apply only to ships proceeding to ports east of the Cape, the number of which that sailed from the port of London in 1865 being 671 only.

Year.			No. of cases of Scurvy admitted.			Of these, number from ports east of Cape.		
1863	...	...	...	86	...	...	...	75
1864	...	...	...	83	...	...	...	66
1865	...	...	...	102	...	...	...	92
1866	...	...	...	101	...	...	...	83

By the terms of these regulations, the shipowner would be protected from fraud on the part of the provision merchant, and the sailor would have a material guarantee that wholesome juice was shipped for his use.

It has been often said that good lime-juice (which is better than lemon-juice) cannot be obtained in sufficient quantity for the supply of our mercantile marine ; but we are advised, and that beyond all question, that the Messrs. Sturge of Birmingham, and Mr. R. W. Buchanan of Jamaica, who unitedly hold seven-eighths of all cultivated lime groves in the West Indies, are perfectly able to supply all the juice that could possibly be required for the merchant navy of the United Kingdom ; and that, too, at as cheap a rate as is paid in the city of London and other ports for very inferior stuff. We have been informed by the authorities at the Royal Victualling Yard, Deptford, that lime-juice was formerly procured from Jamaica for the use of the Royal Navy, but that the contracts were discontinued on account of the inferior quality supplied. We believe, however, that the estates from which this juice was procured have since changed hands ; and are, moreover, assured by the medical officer of the *Dreadnought*, that Jamaica lime-juice is now exclusively used on board that ship ; and that, after the lapse of eighteen months, its quality is excellent, even without the addition of spirit.

By the table above quoted, it will be seen that citric acid is greatly in favour as a convenient substitute for lime-juice. The opinion that citric acid alone constituted the antiscorbutic property of lime and lemon-juice, was held by many authorities some years ago ; but recent facts have entirely obliterated this theory from the minds of practical men ; and we are permitted in this place to quote the eminent authority of Dr. Bryson, Medical Director-General of the Navy ; of Dr. Dickson, R.N., Medical Officer to Her Majesty's Customs ;

and of Drs. Barnes and Ward, physicians to the *Dreadnought*—all of whom are unanimous as to the comparative inutility of citric acid in the prevention of scurvy. It is, however, continually supplied in lieu of lime-juice by many provision merchants in our northern ports, particularly at Glasgow and Sunderland; and we are sorry to find that a little book by Mr. Spencer Wells, containing directions for the use of merchant captains at sea, should, even in the last edition, tend to perpetuate this mistake, by giving a very strong opinion in favour of the citric acid theory. We would not allow this to be a question about which doctors now differ; but, on any grounds, it is unwise to substitute a certain for an uncertain prophylactic or curative agent.

We must differ very decidedly from the opinion expressed by Sir Edward Belcher at the Society of Arts last week, that sulphuric and tartaric acids will cure scurvy; and subscribe to the rejoinder of Captain Toynbee, that the gallant admiral had probably, in the instances cited, made a mistake as to the disease for which he was prescribing.

Various aids to the prevention of scurvy will be spoken of in our *resumé* of general remedies. After this malady, the most undoubtedly preventable diseases that exist among our ocean-going seamen are syphilis, gonorrhœa, and their concomitants. By the assistance of Dr. Rooke, surgeon to the *Dreadnought*, we have had access to the surgical tables of that hospital; and Mr. R. J. Bedford, its assistant-surgeon, has also politely given us statistical aid. From these returns we find that no fewer than 670 cases of venereal diseases were admitted during the past year. It would at present be almost impracticable to state exactly the proportion of seamen severally admitted from ocean-going ships and from coasters: but Dr. Rooke and Mr. Bedford agree that the majority of these patients come from the former class of vessels. No further facts are required to show the importance of lessening this scourge to the mercantile marine. There is no doubt that patients so affected are thereby predisposed to scurvy; and, though this addendum is by no means a necessary result, the existence of the one, as we have already indicated, affords an excuse among masters and mates for the ravages of the other. There are one subordinate and two chief remedies for this special evil: (1) an inspection of the men at the shipping-offices, both at home and abroad, immediately before the commencement of the voyage; or (2) the application of the Contagious Diseases Act to all our maritime as

well as garrison towns and districts, both in the United Kingdom and in the colonies. Of these chief remedies, the latter is, we think, decidedly preferable; for the former would in all probability, be an excessively unpopular piece of legislation, though, if practicable, it would afford a great protection to shipowners in obtaining sound and healthy hands. A third and subordinate remedy is the emphatic insistence of Section 12 in a Notice of Examination of Masters, etc., issued by the Board of Trade in May 1866, which enjoins, among other requirements, that "he shall possess a knowledge of the measures for preventing and checking the outbreak of scurvy on board ship." (The importance of this section was urged by Dr. Dickson in his recent address to the Hunterian Society.) If to this section were added the words, "and also a general knowledge as to the treatment of venereal diseases," a great additional safeguard would exist both for master and seaman. Two interviews of instruction with some such official as an officer connected with the *Dreadnought*, or with any other practitioner equally familiar with sailors and the diseases above mentioned would suffice; and a "Medical Manual for Ship Captains," which we believe will shortly be published, will contain a *résumé* of the instructions received, with practical hints as to their application.

Rheumatism is a very common malady among seamen, and one, too, which is in a great measure preventable. About 160 cases are annually entered on the *Dreadnought* books, this number including acute and chronic varieties. The results of treatment are superlatively unsatisfactory; for, when the formidable symptoms have passed away, these patients linger long in hospital with stiff and painful joints, and are often of necessity sent away by no means well. Scurvy and syphilis are frequent forerunners of this malady, the obvious remedy for which is, on the men, greater attention as to warm and dry clothing; and, on the part of the masters, the seeing that these precautions are properly taken.

Dysentery is endemic in India and China, and cannot, perhaps, be strictly classed as a preventable malady; but we are most fully persuaded that the lives of many sailors would be saved annually, if more care were taken at Calcutta, Hong Kong, and other Asiatic ports, in the matter of water for drinking purposes. The average number of cases admitted into the *Dreadnought* with dysentery year by year is seventy, and this disease stands third on the bill of mortality. Many marked improvements, however, have yet to be made

in the condition of our mercantile marine before we shall persuade "Jack" to forsake the filthy mixtures of rum, arrack, and sangaree, that cause the drinking of bad water to bear such speedy and fatal fruit.

Delirium tremens should be mentioned as to some extent, though not exclusively, a nautical disease; but the remedy for this evil is beyond the efforts of any direct legislation.

We have now told of the preventable diseases that particularly affect the crews of ocean-going ships, and have suggested special remedies appertaining thereto. But certain important alterations as to accommodation and provisions are required, which affect all sanitary conditions alike, and which must be made before the service is likely to become popular among British seamen.

The building of deck-houses should be encouraged; for though, in the case of emigrant and troop ships, they lessen the amount of space available for exercise, the comfort afforded to the crew will more than counterbalance this objection. A space of not less than fifteen superficial feet should be given to each man. As long as top-gallant forecastles are used, the hawse-holes and cables should be enclosed by scuppers and mangers, which Captain Toynbee and others affirm to be a simple and inexpensive proceeding. When the bulkhead is put up, care should be taken to leave certain openings at the upper part, which could be closed, if necessary, in wet weather. If, then, a short movable cowl were fixed in the top-gallant forecastle near the bows, and made to communicate directly with the men's quarters below, a very fair amount of ventilation would be the result. The hatchways should be widened, and block glass skylights let into the deck at various parts.

The scale of provisions requires many items of reform, and this scale should be fixed by law. We were told some months ago by a well-known captain in Messrs. Green's service, that a mixed or varied diet would cost less than that now in use, and be equally convenient for stowage. Such a diet scale should contain good preserved vegetables of several kinds, and preserved meats and pickles in addition to most of the staple articles now supplied. The "grog" question has excited much discussion, and many reformers are strongly against its use. But the most powerful argument in its favour exists in the fact, that in the best ships, where scurvy is unknown and the crew commonly arrive in port well and strong, the "tot" of grog is regu-

larly given and taken ;* and we may, too, cite the valuable opinion of Dr. Dickson in favour of its adoption in the scale of diet, though the lime-juice, if mixed according to the plan proposed, would contain a small proportion (from 10 to 15 per cent.) of rum or brandy. The daily quantity of lime-juice issued should be increased from half an ounce to one ounce per man, and it would be a vast benefit if the crew could be seen to drink it ; albeit, the alcoholic flavour, though mild, would doubtless serve as a sufficient inducement.

Various arrangements as to wages might be made, and additional advantages be offered by savings banks ; but these are points scarcely within our province, and they have been very ably discussed elsewhere.

The rise and progress of Sailors' Homes must, however, receive honourable mention ; and we are greatly indebted to the courtesy of Admiral W. H. Hall, C.B., for particulars as to these very admirable institutions. There are at present but two Sailors' Homes in London—that in Well Street, founded by the late Commodore Elliott, R.N., in 1827 ; and one in the East India Road (commonly called Green's Home), and built by the late Mr. Richard Green, in 1841. Eighteen other establishments of this kind now exist in various parts of the United Kingdom, all of which are chiefly indebted for their origin to the exertions of the gallant admiral. Seven homes have been also established abroad, at Calcutta, Madras, Bombay, Shanghai, Hong Kong, Mauritius, and the Cape. The sanitary and moral benefits derived from these institutions cannot be exaggerated ; and, as it is pleasing to end a somewhat gloomy sketch with so bright an account of good things that are, so, as we have endeavoured temperately to point out the things that should be, it is markedly the duty, and as surely the interest, of our shipowners to assist in the creation of changes that must tend to establish yet more firmly the commercial prestige of the British empire.

III.—COASTERS.

IN discussions that have lately taken place on the condition of the mercantile marine of this country, the merits and demerits of our coasting vessels have been comparatively neglected. But as we find, by Customs returns, that no less than 147,000 are entered in, and

* A very intelligent old sailor, whom we saw last year in the *Dreadnought*, laid up with a fourth attack of scurvy, remarked that, having sailed in all lines of long-voyage ships, he had never had this disease in vessels where grog was given to the crew.

150,000 cleared annually, from the ports of the United Kingdom ; that they necessarily represent a correspondingly large body of men ; and that these men are subjected to far worse weather and more continuous labour than those in ocean-going ships, it is clearly our duty, in discussing the present hygienic state of British shipping, to pay special attention to the coasting section thereof.

It is said that no coasts in the world are more dangerous than those of Great Britain and Ireland ; that, admirably well as our shores are lighted, with every headland crowned with a beacon, and every hidden danger guarded by buoy or lightship, a November gale with the north-east coast of England for a lee-shore, is by no means an enviable circumstance for master or crew. The wrecks that are recorded year by year attest this sufficiently ; and hence it is that these vessels should, by internal arrangements, as well as by external precautions, be protected from the land, oftentimes to them a far worse foe than the sea.

Coal, stone, and bones form a large proportion of the cargoes of coasters ; and the size of these vessels varies from 80 to 300 tons. Billyboys, sloops, schooners, and brigs, are all included in this class, besides a large number of screw and other steam-vessels, which we shall presently describe. We propose to give particulars as to two or three vessels at present lying in or belonging to the ports of London, Lynn, Newcastle, and Sunderland ; and have chosen these ports in order that a fair average may be arrived at by the reader as to the general condition of our coasters.

We naturally commence with the port of London, and have here to acknowledge the courtesy of Dr. Letheby, medical officer of health to the City, who kindly permitted us to accompany his river-inspector (recently appointed under the Prevention of Diseases Act), and so to gain many useful particulars in connexion with this subject. Dr. Rooke, surgeon to the *Dreadnought*, under whose superintendence the ship-to-ship visitation in the Thames was conducted last year, and Mr. W. Johnson Smith, his chief visitor, have also given valuable information. From these sources we have learnt that a great want of accommodation exists for the crews of these vessels ; and that, in the majority of cases, all hygienic rule and principle, or the ghost thereof, are entirely disregarded. The number of hands, all told, varies from three to seven each vessel, always including one or two boys. The master and mate (and sometimes a boy) sleep in the cabin, of which apartment it suffices to say that, though not bounti-

fully provided with air, light, or other sanitary luxuries, it is a paradise of comfort in comparison with the quarters allotted to those at the other end of the vessel.

Before proceeding further, we may at once give the dimensions of the forecastles of six vessels that were lying in the Thames last month, and were measured and inspected by ourselves.

Name of Vessel.	Regst. Tonn.	Crew Fore- castle.	Dimensions of Forecastle.			Dimensions of Hatchway.	
			Hght. Ft. in.	Lgth. Ft. in.	Width Ft. in.	Lngh. Ft. in.	Width Ft. in.
Dispatch, sloop	48	2 or 3	5 0½	12 1	13 0		
Richard Ellwood, billyboy ..	58	2	6 1½	6 1	16 10	2 0	2 0
Prosperity, ditto	57	2	5 3½	5 10	16 0	1 4	2 0
Alderman, brig	197	4	5 5	15 10	22 3	1 10	2 0
Jane Owens, schooner	97	3	6 2	9 10	14 6	1 10	2 0
Ocean Maid, ditto	107	4	5 10	9 11	17 2	1 10	2 0

In these vessels, no other inlet or outlet for air existed, except by means of the hatchway. It was a work of art to descend, and required still more circumspection to get up again; for the ladders of these habitations appear to be constructed with the express purpose of creating as many difficulties as possible in the smallest practicable space; and those, too, of the dirtiest description. It was our lot, while occasionally assisting in the ship-to-ship visitation last year, to attend several sailors suffering from diarrhœa or other maladies in these forecastles, and the utterly miserable condition of men under such circumstances cannot be imagined by landsmen. We have seen many-wretched dens in Golden Lane and the purlieus of Smithfield, and have many times toiled up the wynds, and lofty, but by no means cleanly, stairs abutting on the High Street and Cowgate of Edinburgh; but the superlative closeness and crampiness of these floating habitations can only be compared to the arrangements made for existence in a Bulgar hut of the lowest order, *plus* an additional quantity of air, and *minus* an uncertain number of insects. There are, of course, a few favourable exceptions; and we have visited two or three vessels of this class, in which the height of the fore-castle is a little over six feet.

Thus much for accommodation. The men say that, as to provisions, there is not very much to complain. Fresh meat is generally given, and the agreement is usually worded for "enough without waste." No grog is allowed in the coasting trade, nor, indeed, alcoholic liquors

of any description. The wages of able seamen vary from £3 5s. £4 10s. per month, and are generally on a higher scale than those arranged for ocean-going ships. Much of what is called "tide-work" is included in the vocation of a coasting sailor, which involves a great deal of irregularity as to meals and hours of rest, all of which tend to make the duty more arduous and less healthful.

We may now proceed to give particulars as to vessels that sail out of the Wear, which will include all those belonging to the ports of Sunderland and Seaham. The number of sailing vessels engaged in the coasting trade at Sunderland amounted, in the year 1866, to 781, representing collectively 247,785 tons. Of steamships, 86 were so employed, giving a total of 44,823 tons. These gave employment unitedly to 7,848 hands, of which 5,305 were able seamen, 854 ordinary seamen, 675 apprentices, and 1,014 foreigners. By an analysis of these figures, we arrive at the conclusion that about $2\frac{1}{2}$ hands, including boys, are granted to every 100 tons of shipping; which fact (giving all reasonable allowances for engineers and others employed in the steam department) shows that these vessels are very much under-manned. We learn also that no less than 2,900 vessels (including repeated voyages) are engaged in trade annually to and from Seaham; that the average number of voyages for each vessel is fifteen; and that the average number of hands employed in each vessel is, before the mast, one able and two ordinary seamen, two boys, and one foreigner. The average length of these forecastles is ten feet, the width ten to eighteen feet, and the height five feet; from which may be calculated the amount of cubic space allotted to each of the crew. This space is almost invariably occupied, to a greater or less extent, with towlines, hawsers, and other cordage, which are coiled there as soon as the vessel puts to sea, for the purpose of clearing the deck.

In the matter of provisions, it is a subject of general complaint that, even if there be a sufficiency, all hands are often required to mess in the cabin, which, after the above description of forecastles, would appear to be an eminently satisfactory arrangement. But the men dislike it, because some thereby get their rations cold, and all are often kept waiting until the master shall find it convenient to come off from shore. These complaints are reasonable enough, when we consider the great amount of additional labour involved in the tide-work above mentioned, and the fact that no extra rations are given for this laborious duty.

We took occasion to visit the town of Lynn in the early part of last month, and inspected the forecastles of several coasters belonging to that port, particulars as to five of which are given in the annexed table.

Name of Vessel.	Regst. Tonn.	Crew Fore- castle.	Dimensions of Forecastle.			Dimensions of Hatchway.	
			Hght. Ft. in.	Lngh. Ft. in.	Width Ft. in.	Lngh. Ft. in.	Width Ft. in.
Mitten Hill, sloop	45	1					
Thames, brig	131	3	4 0	8 0	16 0		
Perseverance, ditto	94	3	4 6	7 4	20 0	1 0	1 0
Europe, ditto	169	5	5 8	14 0	16 6		
Iris, schooner	72	2	5 6	8 0			

The forecastle of the *Mitten Hill* was a mere hole nearly filled with cordage.

This table contains most varieties of coasting vessels ; but, as may be seen, there is a wretched uniformity in the relation of room and cubic feet of air to the number of hands employed. Some were, as to their forecastles, very dirty ; some comparatively clean ; but in all, with one exception, the presence of ropes and cordage helped to diminish the pittance of air afforded to the occupants ; and we were told that these impedimenta were very seldom removed. In some cases, the hatchway does not open directly into the forecastle ; but, after crawling into the hole, farcically denominated “companion-hatch,” a further descent has to be made, and that into utter darkness ; for the body of the incoming visitor completely blocks out the small modicum of light that enters from the opening above. If any accident, such as the driving in of the bowsprit, should happen, and this hatchway be closed thereby, any men who might chance to be below would be smothered or drowned before any exit could be made or assistance given. We are told, on good authority, that this miserable casualty has occurred ; and any one who may choose to visit these forecastles will see at once how probable is such an incident, among the hundred and one accidents to which a vessel is liable both in port and at sea.

It will suffice to give, without further remarks, the following particulars relating to vessels belonging to the port of Newcastle-on-Tyne, in order to corroborate evidence on that question.

Name of Vessel.	Regst. Tonn.	Crew Fore- castle.	Dimensions of Forecastle.			Dimensions of Hatchway.	
			Hght. Ft. in.	Length. Ft. in.	Width Ft. in.	Length. Ft. in.	Width Ft. in.
Remembrance	252	7	Average 5 6 16 0 24 0	Measurement		2 6	2 6
Malta	207	8					
Nautilus	268	7					
Sisters	234	7					

By epitomising these particulars, we arrive at the conclusion that the chief evils appertaining to the coasting vessels of Great Britain are, want of room, ventilation, and a great lack of cleanliness, in the forecastles; and a disregard as to the comforts of the men in the manner of cooking and the time allowed for eating—otherwise good provisions.

By an inspection of steam-vessels moored in the port of London, we find that the forecastles are, as a rule, tolerably roomy, though often badly ventilated. Those of the General Steam Navigation Company are decidedly the best; but the following measurements, taken lately, show the amount of space given to the crew of a vessel engaged in general trade between London and Waterford, and latterly between London and Rotterdam.

Name of Vessel.	Regst. Tonn.	Crew Fore- castle.	Dimensions of Forecastle.			Dimensions of Hatchway.	
			Hght. Ft. in.	Length. Ft. in.	Width Ft. in.	Length. Ft. in.	Width Ft. in.
Ranger, screw stm.	308	7	6 8	20 6	13 1	2 3	2 2

We inspected, last year, another of the same line of boats,* which has a most miserably small lower forecastle, with no appliances for light or air, except by a small hatchway under the forecastle deck, and two scuttles, which must of necessity be nearly always closed when the ship is at sea. The chief evils to which the crews of such vessels are subject are, constancy of work, and consequent irregularity as to sleep and meals. Steaming, lading, or unlading goes on *seriatim*, without cessation; and, though wages are high, and the quality of provisions very good, the constant wear and tear of *physique*

* We have heard that this vessel has been lately condemned.

is excessive, particularly in ships employed in the cattle or coal trades.

The preventable maladies specially belonging to sailors of coasting vessels are, typhoid fever, rheumatism, and venereal diseases. Referring once and again to the *Dreadnought* Hospital returns, we find that from sixty to seventy cases of continued fever (nearly all of the typhoid character) are entered annually; and that a large proportion come from this class of ships. These cases are usually of a very severe character; and this ship (which has within its walls the largest civil medical ward in England), is never without very marked clinical instances of this form of disease. The causes of fever are too familiar to need comment here; for we all know well that dirt and foul air are the parents thereof. Most of these patients do well, but convalesce much more slowly than similar cases in other hospitals, because the convalescent department of the *Dreadnought* is carried on under many manifest disadvantages, and for practical purposes of health, can scarcely be said to exist at all.

Of rheumatism and its causes we wrote last week, and venereal diseases were treated of at the same time.

In drawing deductions from the above, several practical remedies will be obvious to the reader. A minimum height of six and a half feet should be adopted in all forecastles, and the latter should have at least treble the amount of communication with the open air for light and ventilation. The cowl recommended in our last article might easily and advantageously be adopted in all coasting vessels. Strict regulations should be issued that no cordage, sails, or articles of any kind, other than the personal effects of the seamen, should be permitted in the forecabin, whether in port or at sea; and the master should be held responsible for the cleanliness of this part of the vessel. It would be well that the scale of rations in coasters, as well as ocean-going ships, should be prescribed by law; and if a clause were inserted, fixing the number of hands with reference to the tonnage, under-manning and overworking would be prevented, and a proper proportion of time for sleep and meals would thereby be afforded to all. Means for the prevention of fever are but a repetition of the foregoing; and the remarks above made, as to the prevention of rheumatic and venereal diseases, apply here with equal force and consistency.

Before concluding this part of our subject, we would remark how pointedly these particulars indicate an urgent necessity for the ap-

pointment of a port-inspector for the Thames, and, indeed, for all large ports. Sanitary rules and regulations, worded and enacted ever so closely and cautiously, are but a dead letter, unless their application is continuously and rigorously supervised. When the Prevention of Diseases Act came into operation during September of last year, Dr. Letheby wisely appointed a river-inspector for that part of the Thames under his jurisdiction. This officer has, during the past few months, issued orders for cleansing and airing to more than sixty vessels, all of which were reported dirty and badly ventilated. But the jurisdiction of the City extends but from London Bridge to the Tower Stairs, and on the north side of the Thames only; so that, as the law now stands, the master of a vessel who has received the City inspector's order may loose moorings, drop out of the City district, and laugh to scorn inspector and order alike. This miserable result of piecemeal legislation was pointed out in the *Times*, both by leading articles and in a letter from Dr. Letheby on the subject. On the other hand, the success of a centralised plan of inspection was shown by the results of the *Dreadnought* system of visitation during the last epidemic of cholera; and there can be no doubt of the utility of a plan which shall form the river into a distinct sanitary district. It was shown, some weeks ago, in the columns of the *Pall Mall Gazette*, that the Thames Conservancy are, as the governing body of the river, specially fitted to have the conduct of such a work; and that ample funds exist for its proper maintenance. It would be eminently advantageous to this corporation to have at their disposal the services of a competent medical officer; and they would then possess the sanitary as well as the administrative jurisdiction of the port of London. Local self-government, in most matters, is at best but doubtfully beneficial; but it is pitiful and fatal economy in sanitary questions, as well as ludicrously absurd legislation, to parcel out a river into little bits of districts, where, by consequence, an order may be made in one, and evaded immediately by the departure of the culprit into another. The creation of such an office, as that just indicated, would do more sanitary good to our coasting trade than any complex system of legal enactments, and would at the same time be welcome, as tending to correct some present evils that are probably more due to the careless habits of seamen than to the parsimony of masters or owners.

IV.—BARGES.—TRAINING SHIPS.—ADDENDA ON SCURVY.—
CONCLUSION.

THE barges of the Thames form a most important element in the commerce of the port of London; and, though steam power of all kinds has been pressed into the service, that brown-sailed vessel with the green or blue hull commonly known as the “Rochester Barge” can still, in number and quality, vie with most kinds of floating craft registered in the British islands. Their number amounts to 2385, indicating a complement of about 142,000 tons, the value of each barge ranging from £400 to £1000. They are usually worked by two men, with the occasional addition of a boy, the master frequently housing on board his wife and family, amounting to from three to ten souls. A cabin aft forms their sole dwelling-place; and our readers can judge of the proportions thereof from the statistics given below, which were collected under personal inspection last month.

Name of Barge.	Dimensions of Cabin.			Dimensions of Hatchway.		Dimensions of Skylight.	
	Hght. Ft. in.	Lngh. Ft. in.	Width Ft. in.	Lngh. Ft. in.	Width Ft. in.	Lngh. Ft. in.	Width Ft. in.
Jane and Sarah, of Grays ...	5 9½	10 0	14 9	2 3	2 0	1 3	1 0
Denton, of Rochester ...	5 10	10 2	13 7	2 2	1 10	1 1	0 9
Willing Trader, of Maldon ...	5 3	9 2	14 2	2 3	2 3	1 3	0 11¼
Susanna & Mary, of London	6 1	10 6	12 10½	2 0	1 10	0 9¾	0 6

It should be remembered that with these and all other measurements given in the report, the dimensions are taken at the widest parts.

There is also a kind of rope depôt at the bows, in which sometimes sleep a man and the aforesaid boy. The cabins are usually very clean indeed, and the most is made of an excessively limited amount of accommodation. But health, under such circumstances, is necessarily maintained against great odds; and, though bread must be earned under this and still more disadvantageous circumstances, the advantages of sanitary supervision for these, as well as other craft is, on this account, the more recommendable. These vessels seldom, if ever, go beyond the Isle of Wight to the west, or Harwich to the east of the Thames, and their cargoes are as variable as the places to which they trade. Metropolitan street-sweepings probably form their most objectionable freights; and this material is being constantly shipped from a wharf near Bermondsey Dock Head on the south, and from a similar depôt nearly opposite, on the north side of the river.

Of other river craft, all more or less requiring sanitary supervision, are mud or ballast-barges, steam lighter tugs, and those curious floating compositions called monkey-barges. These last are specially peculiar to the Grand Junction Canal ; but some of them are always to be found in the river between Blackwall and Westminster. A kind of hole, called by courtesy a cabin, exists at one end of these boats, where frequently live husband, wife, and several children, all betraying the district of their nativity by a most unmistakable Yorkshire or Lancashire brogue. The amount of cubic space allotted to these human beings is so absurdly small that we may omit the homœopathic details thereof ; but it is to be presumed that, in the passage from London to Manchester, some of the family sleep outside, or at all events take their rest on the watch-and-watch principle. There is still a considerable number of these barges, though the up-country trade has now very much diminished.

We should not forget to mention the fact that 4000 floating craft, commonly called dumb barges, ply on the Thames, and are each navigated by two lightermen, the average value of each being about £220.

By the figures above quoted, we find that more than 7000 barges and other small craft are employed in the port of London, representing a floating population of from 14,000 to 15,000 souls. These are usually classed by "Jack," contemptuously enough, as "freshwater sailors ;" but their sanitary arrangements are not, on this account, to be disregarded.

In summary of the foregoing we may observe that, according to the experience of *Dreadnought* medical officers, bargemen, and individuals of that ilk, are by no means an unhealthy class of men ; and so we believe that any evils connected with dirt or overcrowding in this department of our shipping might be easily remedied by the exertions of an active port medical officer.

Our description of vessels is now complete ; but, as we indicated at the outset, a few words should be said as to our present means of recruiting for the merchant navy. Five floating establishments are now in existence for the maintenance and instruction of boys destined for the sea (besides two training-ships for officers, with which we have here nothing to do). The Marine Society's ship *Warspite*, the School Ship Society's frigate *Cornwall*, and the *Chichester*, which has lately been moored at Greenhithe as a home for destitute boys, all belong to London, the reformatory ships *Clarence* and *Akbar* being stationed at

Liverpool. During the year 1865, the number of boys sent to sea from these ships amounted only to 401, two-thirds being furnished by the Marine Society alone. It should, however, be remarked, that these societies are, with the exception of that last named, almost in their infancy; and the training-ship system may therefore be considered as on its trial.

By the courtesy of Mr. Mayo, Registrar-General of Seamen and Shipping, we find that, in the year 1865, 20,280 foreigners were employed in the mercantile marine of the United Kingdom, out of 197,643 men required for the manning of its ships.

We quote these statistics to show how small is the number of seamen at present derived from training-ships, how impolitic is the plan of trusting for a supply of sailors to foreign countries, and, by consequence, how eminently important it is that we should use all reasonable ways and means to make the mercantile marine attractive as a service.

With reference to the important question of scurvy, we would observe that, since these reports appeared, we have received a very courteous communication from Mr. Everard H. Coleman, of the General Register Office for Seamen, calling attention to two technical errors in our explanation of the Merchant Shipping Act, which we gladly acknowledge and append. Referring to a statement in page 64, column 1, of this JOURNAL, he states, in correction, that "no legal provision is made for the daily serving out of fresh provisions to the crew, when in port;" and again at page 65, column 2, that "by sec. 524 of the Merchant Shipping Act, 'any penalty imposed under the Act, or any part thereof, may be applied in compensating any person for any wrong or damage sustained.'" The non-application of this clause by the legislature in several cases that have lately occurred, where it might undoubtedly have taken effect, enhances the necessity for simpler legal enactments, or rather, the legal prevention of evils that render such enactments necessary.

In summing up statistics of scurvy for the past year, we find that a total of 235 accredited cases were admitted into British hospitals, giving no account of those who convalesced in Sailors' Homes or elsewhere. To this we may add, that seven seamen were left at St. Helena, from a ship recently arrived in the Thames; that a vessel put into Falmouth on the 29th ult., with no less than sixteen severe cases of scurvy on board, and that between twenty and thirty cases have arrived in this port during the present month. It would be well (as a

supplementary aid to the prevention of scurvy by inspection of lime-juice) that the dues levied for the St. Helena Hospital should be abolished. It was stated to us some weeks ago by a very old inhabitant of that island, that this fact alone caused many ships to pass without calling for needful supplies of anti-scorbutic material. I would, however, remark that, if the system proposed by the Seamen's Hospital Society were put in force, no such aid to the prevention of this disease would be required, inasmuch as every ship would then be supplied with a sufficiency of good lime-juice.

In concluding this report, it is a very great pleasure to record the large amount of polite assistance that we have received from official and unofficial authorities, in the search for accurate and authentic information. We have named those authorities *seriatim*, as the information supplied by them has been recorded in these pages, and have to tender to them, as well as to Captains Tribe, Routh, Mr. Keep, and several other gentlemen connected with the mercantile marine, our warmest thanks for much valuable aid, without which the prosecution of this question in its entirety would have been impracticable.

We should never lose sight of the fact that there is a shipowner's as well as a sailor's view to be taken on this very large subject, and that much has been lately written with a far too great leaning to the side of the latter. Being able to speak with authority on the question of scurvy, we would specially commend the remarks that have gone before to the attention of shipowners, and beg to assure them that the means urged for the eradication of this disease have been planned with the object of consulting and protecting their interests fully as much as those of their seamen. The day cannot be far distant when this scourge will be completely eradicated from our mercantile navy, and the merchants of this country, both of great and of small degree, will, most assuredly, find their financial interests greatly benefited by a change that will give an impetus to commercial prosperity, and, at the same time, afford a large additional amount of sanitary status and usefulness to British seamen.